Response ID:571 Data

1. BOSC 2017 Nominations

Self Nomination:

Yes

Nominator Information

First Name

Last Name

Nominator Title

Street Address

City

State

Postal Code

Email Address

Phone Number

Mobile Phone

Nominee Information

First Name

Anthony

Last Name

Bahinski

Nominee Title

PhD, MBA, FAHA

Street Address

Exemption 6

[redacted]

Mobile Phone

Employment Information

Place of Employment/Work:

GlaxoSmithKline

Work Street Address

709 Swedeland Road

Work City

King of Prussia

Work State:

Pennsylvania

Work Postal Code

19406

Work Phone Number

610-270-7410

Work Email Address

anthony.x.bahinski@gsk.com

Sector

Industry

Qualifications

Primary Area(s) of Expertise

Complex In Vitro Models, Safety Pharmacology, Drug Discovery & Development, Organ Chips & Microphysiological Systems, Cardiac Physiology and Pharmacology, Ion Channels and electrophysiology

Committee Preference(s)

Executive Committee
Chemical Safety for Sustainability and Human Health Risk Assessment Subcommittee

Statement of Interest

Interested in serving to support and strengthen mission of EPA as a member of Board of Scientific Counselors, by providing advice, information, and recommendations regarding science, technology and engineering research.

Skills/qualifications related to committee preference(s) specified

My career spans from academic research to large Pharma, with over 16 years of experience in the pharmaceutical industry. Recognized thought leader in field of Complex In Vitro Models and in development of Organ on Chip technology. Research interests include the development of organ-on-a-chip technology for efficacy, safety and toxicity evaluation of drugs, biologics, environmental toxins (small molecules or atmospheric), and nanoparticles, including mechanistic studies and disease models. For seven years, while at the Wyss Institute at Harvard, helped lead the development of these Complex In Vitro Models with the major focus of the effort on development of human "Organs on Chips" that use methods of miniaturization adapted from the computer industry to build functional microfluidic devices with living human cells as components. These tiny, complex, three-dimensional models of human organs can be used to study pathophysiological mechanisms in situ, as well as replace costly and time-consuming animal studies for drug development and toxicology applications. I am currently a member of the Science Board of the United States Food and Drug Administration, and have served on Peer Review Panels at the NIH, EPA and NCI SBIR.

Other Relevant Information

Current Special Government Employee (SGE) as member of FDA Science Board

Participated as member of Peer Review Panel for EPA

CV/Resume URL

2. CV/Resume

Please upload your CV/ Resume.

Anthony_Bahinski_CV_May_2017_041917.docx

3.

BOSC Nomination

Jun 27, 2017 12:04:16 Success: Email Sent to: tracy.tom@epa.gov

4. Thank You for your Submission!

ANTHONY BAHINSKI, PHD, MBA, FAHA

Global Head, Safety Pharmacology

Mechanistic Safety & Disposition, In Vitro/In Vivo Translation

R&D Platform Technology & Science

GlaxoSmithKline

709 Swedeland Road - UE0364

King of Prussia, PA 19406

Phone: 610-270-7410 **anthony.x.bahinski@gsk.com**

SUMMARY

My career spans from academic research to large Pharma, with over 16 years of experience in the pharmaceutical industry. Recognized thought leader in field of Complex In Vitro Models and in development of Organ on Chip technology. Research interests include the development of organ-on-a-chip technology for efficacy, safety and toxicity evaluation of drugs, biologics, environmental toxins (small molecules or atmospheric), and nanoparticles, including mechanistic studies and disease models. For seven years, while at the Wyss Institute at Harvard, helped lead the development of these Complex In Vitro Models with the major focus of the effort on development of human "Organs on Chips" that use methods of miniaturization adapted from the computer industry to build functional microfluidic devices with living human cells as components. These tiny, complex, three-dimensional models of human organs can be used to study pathophysiological mechanisms in situ, as well as replace costly and time-consuming animal studies for drug development and toxicology applications. I am currently a member of the Science Board of the United States Food and Drug Administration, and have served on Peer Review Panels at the NIH, EPA and NCI SBIR.

PROFESSIONAL EXPERIENCE

PROFESSIONAL EXPERIENCE:

GlaxoSmithKline **February 2016 – present**

Global Head, Safety Pharmacology

Strategic and operational leadership responsibility for a US and UK based group specializing in Safety Pharmacology assessments. Provides functional leadership in areas of integrative pharmacology/physiology, such as cardiovascular, respiratory, CNS, renal and other highly specialized tissues/systems. Safety Pharmacology is defined by regulatory guidelines and project deliverables as well as by expertise in investigating these specialized areas of safety testing, which are applied from target selection through post-registration.

- Design, implement and execute a coordinated global strategy to deliver Specialized Safety Testing support for R&D Projects through standard and bespoke work packages investigating the risk associated with cardiovascular, respiratory, CNS, renal or other highly specialized tissues/systems. The work includes planning, conducting and interpreting findings from preclinical in vitro and in vivo studies, integration of drug disposition information and advising on clinical safety hazard/risk assessment and plans to mitigate those risks.
- Responsible for reducing attrition by supporting efforts to identify the best drug candidates, timely project issue resolution, and clinical translation of in vitro/ex vivo data by working in partnership with the Drug Design and Selection Platform and the In Vitro/In Vivo Translation Platform.
- Define, refine, and implement standards and peer review to ensure data and appropriate reports are of high quality, meet GLP requirements, and build confidence in GSK's integrity and scientific credibility with internal partners, external reviewers and Regulatory Authorities
- Implement and maintain strategic workforce planning to define project demand- workforce capacity analysis in order to enable a responsive, capable workforce
- Optimize cycle times and costs for both internal and CRO work packages related to Safety Pharmacology testing, and establish an ongoing process to monitor the efficiency of how and where work packages are completed. Partner with SciNovo to establish strong CRO partnerships and engagement plans.

- Define, implement and financially coordinate approaches to technology/knowledge transfer as a catalyst for wider externalized partnerships (commercial, academic, collaborative) in the areas of drug safety.
- Promote external networks and influence through key industry groups, scientific consortia and associated regulatory activities in the specialized safety testing area.
- Provide a structure and/or opportunities to allow staff to integrate mechanistic safety and disposition data, and translate this knowledge to the clinical setting.
- Ensure development of scientists to maintain a highly motivated, productive and innovative science platform that builds on best practices across sites and sub-disciplines to continuously improve safety pharmacology testing strategies and tactics

FDA special government Employee (SGE) Advisory Committee Member **Jan 2015 - present**
Science Board of the US Food and Drug Administration
The Science Board provides advice to the Commissioner and other appropriate officials on specific complex scientific and technical issues important to FDA and its mission, including emerging issues within the scientific community. Additionally, the Science Board provides advice that supports the Agency in keeping pace with technical and scientific developments, including in regulatory science; and input into the Agency's research agenda; and on upgrading its scientific and research facilities and training opportunities. It also provides, where requested, expert review of Agency sponsored intramural and extramural scientific research programs.

WYSS INSTITUTE FOR BIOLOGICALLY INSPIRED ENGINEERING,
HARVARD UNIVERSITY MEDICAL SCHOOL, Boston, MA **July 2010 - Feb 2016**
Lead Senior Staff Scientist July 2010 – Feb 2016

The mission of the Wyss Institute for Biologically Inspired Engineering at Harvard University is to transform human healthcare and the environment by emulating the way nature builds. Developed as an alliance between Harvard and other premier academic and clinical partner institutions, Institute faculty and staff collaborate in high-risk, fundamental research and science-driven technology development. A major focus of the Institute is to translate the technologies developed by its faculty and staff into commercial products and therapies through collaborations with clinical investigators and establishment of corporate alliances.

Advanced Technology Team
- Led major collaborations with FDA, NIH and DARPA in development of “Organ-on-Chips” technologies
- Development of organ-on-a-chip technology for preclinical safety and efficacy evaluation of small molecules, biologics, nanoparticles, cellular therapies, environmental safety and food safety.
- Help guide the material and device development efforts of the Enabling Technology Platforms
- Mentor staff and students in the technology translation and intellectual property areas, and provide institutional memory.
- Foster communication and interactions across the Wyss, while ensuring that Institute members translate their technologies into commercial products and therapies through partnerships with industrial and clinical collaborators.

PFIZER, INC., St. Louis, MO (formerly Pharmacia, Inc., / Upjohn) **2001 - 2010**
St. Louis Site Lead – Global Safety Pharmacology 2008 - 2010
Research Fellow - Drug Safety Research & Development

Global Safety Pharmacology (GSP) Leadership Team
- Managed all aspects of successful implementation of GSP operation model, fostering new culture of unburdened organization and fast and effective decision-making
- Effective and streamlined project and portfolio decision making and resource management
- Deployed and delivered continuous productivity improvements through efficient uses of resource
- Developed and implemented talent/succession development plans
- Developed technology investment strategy to increase confidence in translation of effects to man and to increase our technical competence
- Led scientific excellence within GSP organization

Pfizer Research Unit Interface – Point of Contact: Pfizer Regenerative Medicine

- Member of Pfizer Regenerative Medicine Extended Leadership Team
- Point of Contact and interface for Safety Pharmacology with Inflammation and Indications Discovery Research Units

St. Louis Site Lead, Global Safety Pharmacology 2005 - 2008
Associate Research Fellow - Drug Safety Research & Development

Strategic Alliances (Internal Pfizer Secondee, Business Development) 2005
Business Development Group - Pfizer Global Research and Development

Associate Research Fellow - Pfizer Global Research and Development 2003 – 2005
Worldwide Safety Sciences - Head, In Vitro Safety Pharmacology

Research Advisor – Kalamazoo, MI 2003
Worldwide Safety Sciences - Pfizer Global Research and Development

Research Advisor – Kalamazoo, MI 2001 – 2003
Pre-Clinical Toxicology ID / Safety Pharmacology - Pharmacia Corporation

PROCTER & GAMBLE PHARMACEUTICALS, MASON, OH **1994 - 2001**
Senior Scientist - Research Project Leader, Antiarrhythmics Discovery 1999 - 2001
Head - Cardiac Electrophysiology Laboratory
Cardiovascular Research

Senior Scientist - Cardiovascular Research 1998 - 1999
Head - Cardiac Electrophysiology Laboratory

Research Scientist 1994 - 1998
Cardiac Research - Next Generation Antiarrhythmic Project
Head - Cardiac Electrophysiology Laboratory

UNIVERSITY OF CINCINNATI SCHOOL OF MEDICINE, Cincinnati, Ohio **1992 - 1994**
New Investigator - NIH "Program of Excellence in Molecular Biology of Heart and Lung"

New Investigator - NIH "Program of Excellence in Molecular Biology of Heart and Lung" **1989 – 1992**
Department of Molecular Genetics, Biochemistry and Microbiology

THE ROCKEFELLER UNIVERSITY, NEW YORK, NY **1986 - 1989**
Postdoctoral Associate - Laboratory of Cardiac Physiology

EDUCATION

Masters of Business Administration, Xavier University, Cincinnati, OH

Doctorate in Physiology, Temple University, Philadelphia, PA

Bachelor of Science in Biology, Drexel University, Philadelphia, PA

SELECTED ACCOMPLISHMENTS

Wyss Institute for Biologically Inspired Engineering at Harvard University

- Lead Senior Staff Scientist coordinating efforts between FDA, NIH and Wyss on grant funded by the first joint NIH-FDA initiative focused on advancing Regulatory Science. Grant provides $3.3M to adapt the lung-on-a-chip for direct application of aerolized drugs and nanotherapeutics, and to link this device to the Heart-on-a-Chip device using microfluidics to create a 'Heart-Lung Micromachine' for drug testing and safety evaluation.
- Lead Senior Staff Scientist coordinating efforts between FDA and Wyss on grant funded ($5.6 million) by the FDA on developing organ chips for use in developing medical countermeasures for acute radiation syndrome.
- FDA/DARPA Microphysiological Systems Project - Lead Senior Staff Scientist coordinating efforts between FDA and DARPA on grant funded ($37 million) by DARPA on developing organ chips for use in drug testing and safety evaluation. Member of Wyss Institute team that developed funded project proposal for DARPA BAA, including technology development, validation and commercialization. Funding level is equivalent to "Series B"; $37 million over 5 years.
- Leadership role in developing industrial relationships and outreach that will guide the research and development efforts at the Wyss Institute.
- Provide clear and compelling direction for prototype development of novel human cell-based microsystems, and guide applied research primarily focused on achieving commercial proof-of-concept and demonstration of commercial viability.
- Assess potential market opportunities and risks and to develop strategic plans for successful technology transfer and commercialization.
- Co-author of 14 publications and co-inventor on 6 patent applications relevant to "Organ-on-Chip" technology and microphysiological systems

National Cancer Institute (NCI) Investor Forum Review Committee (multiple years since 2012)
Assessed small businesses to present at NCI Investor Forum. Evaluated Technology and commercial potential. The NCI SBIR Investor Forum represents a pivotal opportunity for current NCI SBIR recipient companies to showcase their innovative technology to the investment community.

Appointed to the Science Board of the US Food and Drug Administration (2015-2018).
The Science Board shall provide advice to the Commissioner and other appropriate officials on specific complex scientific and technical issues important to FDA and its mission, including emerging issues within the scientific community. Additionally, the Science Board will provide advice that supports the Agency in keeping pace with technical and scientific developments, including in regulatory science; and input into the Agency's research agenda; and on upgrading its scientific and research facilities and training opportunities. It will also provide, where requested, expert review of Agency sponsored intramural and extramural scientific research programs.

Elected Councilor (Executive Committee) of the Cardiovascular Toxicology Specialty Section (CVTSS) of the Society of Toxicology (SOT) (2014-2016).
The Mission of the Specialty Section is to serve as the catalyst for the interaction and development of members of the Society of Toxicology with a vested interest in cardiovascular toxicology. The Specialty Section is committed to the identification, prevention, and/or amelioration of cardiovascular toxicities. The principal endeavor of this commitment is to encompass cardiovascular toxicology spanning mechanistic, translational, clinical, and epidemiology studies in regards to pharmacological, occupational, and public health.

Elected to the Board of Directors of the Safety Pharmacology Society (2013-2015)
The Safety Pharmacology Society is a nonprofit organization that promotes knowledge, development, application, and training in Safety Pharmacology; a distinct scientific discipline that integrates the best practices of pharmacology, physiology and toxicology. The specific responsibility areas of the Board of Directors are:

- Planning the future direction of the association;
- Establishing broad policies to guide the operation of the association;
- Setting financial objectives and monitoring their achievement.

2012 NIH SBIR/STTR Small Business Review Panel - Cardiovascular Sciences
Member of NIH panel to review **small business grant** applications in the Cardiovascular Sciences (Meeting: ZRG1 CVRS-N 10)

2012 (Jan) – Nominated by the Society of Toxicology Council's NIEHS Liason Group for consideration for the National Institute of Environmental Health Sciences (NIEHS)/National Toxicology Program (NTP)'s Scientific Advisory Committee on Alternative Toxicological Methods (SACATM)

2012 (Oct) - Nominated by the Society of Toxicology Council's FDA Liason Group for consideration for the US Food and Drug Administration's Science Board.

Member of Planning Committee for Institute of Medicine (IOM) of the National Academy of Sciences Workshop (2011): Advancing Regulatory Science for Medical Countermeasure Development
Workshop was held as collaboration between the IOM's Forums on Drug Discovery, Development, and Translation (the Drug Forum) and Medical and Public Health Preparedness for Catastrophic Events (the Preparedness Forum to explore issues related to Advancing Regulatory Science for Medical Countermeasure Development.

External Advisory Board, Dept. of Biomedical Engineering, School of Engineering and Applied Science, Washington University, St. Louis
Member of External Advisory Board consisting of members from various industry and academic organizations. Key focus:

- Serve as sounding board for any aspects of Biomedical Engineering (BME) education and research
- Provide feedback to department, particularly about educational issues

Member of Review Editorial Board of Frontiers in Pharmacology of Ion Channels and Channelopathies, a Specialty of the journal Frontiers in Pharmacology

Pfizer - St. Louis Site Lead for Global Safety Pharmacology (GSP) organization.
Member, responsible for global management of one of the largest safety pharmacology groups in pharmaceutical industry, including developing yearly budget (St. Louis and Global Safety Pharmacology), personnel evaluation, hiring, technology development and investment in external technologies (small business, academia, biotech).

- Responsible for all aspects of Safety Pharmacology for St. Louis site (In Vitro, In Vivo, CNS, CV, and Respiratory).
- Established small animal in vivo cardiovascular evaluation capability at St. Louis site.

Pfizer Research Unit Interface – Point of Contact: Pfizer Regenerative Medicine
Focused on:

- Evaluation and prioritization of external research technology (small business, Biotech) for integration into Pfizer program.
- Development of Safety and Research Strategy in conjunction with Regenerative Medicine Leadership Team
- Member of Regenerative Medicine Extended Leadership Team
- Championed investigation and development of stem cell technology as novel system for in vitro toxicology evaluation.

Pfizer Drug Safety Technology Council
Member, Global Safety Sciences Technology Board. Key focus:

- Evaluation of external technologies (small business, Biotech) to fill Pfizer gaps and needs. Evaluated technology based on strength of science and commercialization potential.
- Fostering innovation within Safety Sciences, by supporting the development and evaluation of high priority technologies aligned with Worldwide Safety Sciences business objectives,
- Facilitating the implementation of successful technologies to improve confidence in the safety of Pfizer's portfolio.

Pfizer Cardiovascular Safety Council (CVSC)
Member, focused on optimizing drug development and reducing attrition by serving as internal subject matter experts that:

- Provide single point of contact for expert advice to project teams and due diligence teams on cardiovascular related issues
- Develops strategies to influence internal and external environment with respect to cardiovascular safety
- Provides forum to integrate non-clinical and clinical research strategies

Drug Safety Team Lead
Team leader responsible for all aspects of safety evaluation and strategy for projects. Projects focused on Inflammation, Pain and Oncology. Understanding of mechanisms of action and target to assess safety concerns and develop appropriate strategy

SELECTED SCIENTIFIC ACCOMPLISHMENTS

Development of high-throughput assays for rapid assessment of cardiac ion channel blockade. Assay-development / implementation of a 16-Channel Automated Patch Clamp (PatchXpress 7000A /Axon Instruments, Inc.) for hERG evaluation.

Discovery of Novel Antiarrhythmic Compounds. Discovery Project Leader, Atrial Selective Antiarrhythmics Project (5/1999 – 9/2001). Established a discovery team (15 chemists and biologists) and then worked with the team to develop and implement strategies (assays, success criteria, milestones, process, timelines, budget) to discover leads and provide proof of concept. Head, Cellular Cardiac Electrophysiology laboratory (8/1994 – 9/2001). Led the screening effort for Class III antiarrhythmic activity using patch clamp and AP methodology. Development of fluorescent-based and Rb^+ efflux-based assays for rapid assessment of ion channel blockade.

Use of combined techniques of molecular biology and electrophysiology to conduct a structure-function analysis of the cardiac L-type calcium channel. Localization of Ca^{2+} selectivity region and DHP binding areas using site-directed mutagenesis and chimeric constructs. Structure-function of plasmalemmal Ca^{2+}-ATPase.

Biophysical characterization of the Na/K-ATPase by measuring transient and steady-state Na/K pump currents. Discovery and characterization of a novel cAMP-activated chloride current in ventricular myocytes (*Nature*, 340:718-721, 1989).

FELLOWSHIPS AND AWARDS

Independent Research Program Award
Procter & Gamble Company
Project title: *Discovery of novel blockers for a T-lymphocyte-specific potassium channel ($K_V1.3$): potential for development of new immunosuppressants.*

FASEB Postdoctoral Award
Cell and General Physiology Section
American Physiological Society

Post-doctoral Fellow, American Heart Association
New York City Affiliate

Pre-doctoral Fellowship, American Heart Association
S.E. Penna. Chapter

SOCIETY MEMBERSHIPS

Safety Pharmacology Society
- Elected Board of Directors (2013-2015)

American Heart Association
Inaugural Fellow of the American Heart Association (FAHA)
Basic Science Council

Biophysical Society

International Society for Heart Research
North American Section

Biomedical Engineering Society

Society of Toxicology

PATENT APPLICATIONS

Replacement of polydimethylsiloxane with clear, flexible, and castable polyurethane in the fabrication of microfludic devices for applications such as tissue engineering and drug screening
PCT/US12/36920 filed 05/08/12 Pub#WO2012154729 - In Nat'l Phase
U.S. Utility 14/116,481 filed 11/08/13 Pub#2014-0199764 - Pending
Ingber, Donald E.,; Domansky, Karel; Leslie, Daniel Christopher; Hamilton, Geraldine A.; **Bahinski, Anthony**

Microfluidic Aerosol Drug Delivery
PCT/US12/37096 filed 05/09/12 Pub#WO2012154834 - In Nat'l Phase
U.S. Utility 14/116,477 filed 11/08/13 Pub#2014-0158233 - Pending
Ingber, Donald E.; Leslie, Daniel Christopher; Domansky, Karel; Hamilton, Geraldine A.; **Bahinski, Anthony**

Integrated Human Organ-on-chip Microphysiological Systems HU/UT
PCT/US12/68725 filed 12/10/12 Pub#WO2013086486 - In Nat'l Phase
U.S. Utility 14/362,841 filed 06/04/14 Pub#2015-0004077 - Pending
U.S. CONT 14/928,039 filed 10/30/15 Pub#2016-0145554 - Pending
Ingber, Donald E.; Cunningham, Robert; Hamilton, Geraldine A.; Parker, Kevin Kit; Levner, Daniel; Goss, Josue A.; Wikswo, John; Samson, Philip; Reiserer, Ronald; McLean, John; McCawley, Lisa; Markov, Dmitry; Cliffel, David; **Bahinski, Anthony**; Block III, Frank Emmanuel; McKenzie, Jennifer Robin; Hinojosa, Christopher David

Integrated Human Organ-on-chip Microphysiological Systems HU
PCT/US12/68766 filed 12/10/12 Pub#WO2013086502 - In Nat'l Phase
U.S. Utility 14/363,105 filed 06/05/14 Pub#2014-0342445 - Pending
Ingber, Donald E.; Parker, Kevin Kit; Hamilton, Geraldine A.; **Bahinski, Anthony**

(TEER chip) Electrode integration into organs on chip devices with improved transparency and flexibility
PCT/US16/67294 filed 12/16/16 - Pending
Ingber, Donald E.; Henry, Olivier Y.; Novak, Richard; **Bahinski, Anthony**; Wen, Norman; Van der meer, Andries; Villenave, Rémi; Hamkins-Indik, Tiama

Microfluidic shear flow test platform
PCT/US17/17980 filed 02/15/17 - Pending
Ingber, Donald E.; Novak, Richard; Mayor, Elizabeth; **Bahinski, Anthony**; Masoumi, Nafiseh; Mayer, John

PUBLICATIONS

(22 selected of 42; recent CIVM related publications highlighted in bold)

Bahinski,A., Nakao,M. and Gadsby,D.C. : Potassium translocation by the Na/K pump is voltage insensitive. *Proc. Natl. Acad. Sci. USA*, 85:3412-3416, 1988.

Bahinski,A., Nairn,A.C., Greengard,P. and Gadsby,D.C. : Chloride conductance regulated by cyclic AMP-dependent protein kinase in cardiac myocytes. *Nature*, 340:718-721, 1989.

Yatani,A., Wakamori,M., Mikala,G. and Bahinski,A. : Block of transient outward-type cloned cardiac K^+ channel currents by quinidine. *Circ. Res.* 73: 351-359, 1993.

*****Tang, S., *****Mikala, G., *****Bahinski,A., Yatani, A., Varadi, G. and Schwartz, A. : Molecular localization of ion-selectivity sites within the pore of a human L-type cardiac calcium channel. *J. Biol. Chem.*, 268: 13026-13029, 1993. (*co-first authors)

Tang, S., Yatani, A., Bahinski, A., Mori, Y. and Schwartz, A. : Molecular localization of regions in the L-type calcium channel critical for dihydropyridine action. *Neuron*, 11: 1013-1021, 1993.

Bahinski, A., Yatani, A., Mikala, G., Tang, S., Yamamoto, S. and Schwartz, A. : Charged amino acids near the pore entrance influence ion-conduction of a human L-type Ca^{2+} channel. *Mol. Cell. Biochem.* 166: 125-134, 1997.

Claycomb, W.C., Lanson, N.A., Jr., Stallworth, B.S., Egeland, D.B., Delcarpio, J.B., Bahinski, A. and Izzo, N.J., Jr. : HL-1 Cells: A cardiac muscle cell line that contracts and retains phenotypic characteristics of the adult cardiomyocyte. *Proc. Natl. Acad. Sci. USA*, 95: 2979-2984, 1998.

Chaudhary, K.W., Barrezueta, N., Bauchmann, M., Milici, A.J., Beckius, G., Stedman, D., Hambor, J., Blake, W., McNeish, J.D., Bahinski, A. and Cezar, G.G.: Embryonic Stem Cells in Predictive Cardiotoxicity: Laser Capture Microscopy Enables Assay Development. *Toxicol Sci*, 90(1): 149–158, 2006.

Chaudhary, K.W., O'Neal, J., Mo, Z-L., Fermini, B., Gallavan, R. and Bahinski, A.: Evaluation of the Rubidium Efflux Assay for Pre-clinical Identification of HERG Blockade. *Assay Drug Dev Technol*, Vol. 4, Number 1: 73-82, 2006.

Flagg, T.P., Cazorla, O., Remedi, M.S, Haim, T.E, Tones, M.A., Bahinski, A., Randal E. Numann, R.E., Kovacs, A., Schaffer, J., Nichols, C.G., and Nerbonne, J.M.: Ca^{2+}-Independent Alterations in Diastolic Sarcomere Length and Relaxation Kinetics in a Mouse Model of Lipotoxic Diabetic Cardiomyopathy. *Circ. Res.* 104 (1): 95-103, 2009.

Mo, Z-L., Faxel, T., Yang, Y-S., Gallavan, R., Messing, D. and Bahinski, A.: Effect of compound plate composition on measurement of hERG current IC50 using PatchXpress. *J Pharm Tox Methods*, Jul-Aug; 60 (1):39-44, 2009.

Haim, T.E, Wang, W., Flagg, T.P., Tones, M.A., Bahinski, A., Randal E. Numann, Nichols, C.G., and Nerbonne, J.M.: Palmitate Attenuates Myocardial Contractility Through Augmentation of Repolarizing Kv Currents. *Journal of Molecular and Cellular Cardiology*, Feb;48(2):395-405, 2010. Epub 2009 Oct 24.

Hughes RO, Rogier DJ, Devraj R, Zheng C, Cao G, Feng H, Xia M, Anand R, Xing L, Glenn J, Zhang K, Covington M, Morton PA, Hutzler JM, Davis JW 2nd, Scherle P, Baribaud F, Bahinski A, Mo ZL, Newton R, Metcalf B, Xue CB: Discovery of ((1S,3R)-1-isopropyl-3-((3S,4S)-3-methoxy-tetrahydro-2H-pyran-4-ylamino)cyclopentyl)(4-(5-(trifluoromethyl)pyridazin-3-yl)piperazin-1-yl)methanone, PF-4254196, a CCR2

antagonist with an improved cardiovascular profile. *Bioorg Med Chem Lett.* 2011 Jan 15. [Epub ahead of print]

Domansky K, Leslie DC, Fraser JP, Hamilton GA, Bahinski A and Ingber DE: Non-absorbing, clear, flexible, and castable polyurethane for fabrication of microfluidic devices. *Conference Technical Digest , µTAS 2011 15th International Conference on Miniaturized Systems for Chemistry and Life Sciences,* in press, 2011

Jang K-J, Hamilton GA, McPartlin L, Bahinski A, Kim HN, Suh K-Y and Ingber DE: Human kidney proximal tubule-on-a-chip for drug transporter studies and nephrotoxicity assessment. *Conference Technical Digest , µTAS 2011 15th International Conference on Miniaturized Systems for Chemistry and Life Sciences,* 2011

Leslie DC, Domansky K, Hamilton GA, Bahinski A and Ingber DE: Aerosol drug delivery for lung on a chip. *Conference Technical Digest , µTAS 2011 15th International Conference on Miniaturized Systems for Chemistry and Life Sciences,* 2011

Kim SB, Koo KI, Bae H, Dokmeci MR, Hamilton GA, Bahinski A, Kim SM, Ingber DE and Khademhosseini A: A mini-microscope for *in-situ* monitoring of cells. *Lab on a Chip,* 12:3976-3982, 2012

Domansky K, Leslie DC, McKinney J, Fraser JP, Sliz JD, Hamkins-Indik T, Hamilton GA, Bahinski A, Ingber DE: Clear castable polyurethane elastomer for fabrication of microfluidic devices. *Lab on a Chip,* 2013 Oct 7;13(19):3956-64

Huh D, Kim HJ, Fraser JP, Shea DE, Khan M, Bahinski A, Hamilton GA, Ingber DE. Microfabrication of Human Organs-on-Chips. Nature Protocols 2013; 8:2135-2157.

Alépée N, Bahinski A, Daneshian M, De Wever B, Fritsche E, Goldberg A, Hansmann J, Hartung T, Haycock J, Hogberg H, Hoelting L, Kelm JM, Kadereit S, McVey E, Landsiedel R, Leist M, Lübberstedt M, Noor F, Pellevoisin C, Petersohn D, Pfannenbecker U, Reisinger K, Ramirez T, Rothen-Rutishauser B, Schäfer-Korting M, Zeilinger K, Zurich MG. State-of-the-art of 3D cultures (organs-on-a-chip) in safety testing and pathophysiology. *ALTEX*. 2014;31(4):441-77. doi: http://dx.doi.org/10.14573/altex1406111. Epub 2014 Jul 14. Review.

Esch EW, Bahinski A, Huh D. Organs-on-chips at the frontiers of drug discovery. *Nat Rev Drug Discov*. 2015 Apr;14(4):248-60. doi: 10.1038/nrd4539. Epub 2015 Mar 20. Review. PMID: 25792263

Benam KH, Villenave R, Lucchesi C, Varone A, Hubeau C, Lee HH, Alves SE, Salmon M, Ferrante TC, Weaver JC, Bahinski A, Hamilton GA, Ingber DE. Small airway-on-a-chip enables analysis of human lung inflammation and drug responses in vitro. *Nat Methods*. 2015 Dec 21. doi: 10.1038/nmeth.3697. [Epub ahead of print] PMID:26689262

Marx U, Andersson TB, Bahinski A, Beilmann M, Beken S, Cassee FR, Cirit M, Daneshian M, Fitzpatrick S, Frey O, Gaertner C, Giese C, Griffith L, Hartung T, Heringa MB, Hoeng J, de Jong WH, Kojima H, Kuehnl J, Leist M, Luch A, Maschmeyer I, Sakharov D, Sips AJ, Steger-Hartmann T, Tagle DA, Tonevitsky A, Tralau T, Tsyb S, van de Stolpe A, Vandebriel R, Vulto P, Wang J, Wiest J, Rodenburg M, Roth A. Biology-inspired microphysiological system approaches to solve the prediction dilemma of substance testing. *ALTEX*. 2016 May 15. doi: 10.14573/altex.1603161. [Epub ahead of print]

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